

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

**What Is Claimed Is:**

1           1.    A system for MPW (multi-project wafer) shuttle  
2 service, comprising:

3           a first MPW shuttle reserving for a first group of device  
4           designs;

5           a second MPW shuttle reserving for a second group of device  
6           designs; and

7           a checking unit to determine whether mask data for the first  
8           group has been provided by a cut off date for the first  
9           MPW shuttle, and to exchange a first target device  
10          design from the first group with a second target  
11          device design from the second group if the mask data  
12          of the first target device design has not been  
13          provided and that of the second target device design  
14          has been provided by the cut off date.

1           2.    The system of claim 1 further comprising a mask  
2           production unit to produce a common mask according to the mask  
3           data for the first group after the cut off date.

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

1           3.    The system of claim 2 wherein the checking unit  
2    further releases the first MPW shuttle to a production line, and  
3    wafer fabrication according to the common mask begins.

1           4.    The system of claim 1 further comprising a reservation  
2    unit for booking device designs on the first or second MPW  
3    shuttle.

1           5.    The system of claim 4 wherein the checking unit  
2    further updates a first booking record of the first MPW shuttle  
3    to include the second device design, and updates a second booking  
4    record of the second MPW shuttle to include the first device  
5    design via the reservation unit.

1           6.    The system of claim 1 further comprising a mask data  
2    preparation unit to receive device design mask data.

1           7.    A method for MPW (multi-project wafer) shuttle  
2    service, comprising the steps of:

3           determining whether device design mask data for a first  
4           group reserved on a first MPW shuttle has been

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

5                   provided by a cut off date for the first MPW shuttle;  
6                   and  
7                   exchanging a first target device design from the first  
8                   group with a second target device design from a second  
9                   group reserved on a second MPW shuttle if the mask  
10                  data of the first target device design has not been  
11                  provided and that of the second target device design  
12                  has been provided by the cut off date.

1                  8.    The method of claim 7 further comprising producing a  
2                  common mask according to the mask data in the first group after  
3                  the cut off date.

1                  9.    The method of claim 8 further comprising starting the  
2                  first MPW shuttle, and fabricating wafers according to the  
3                  common mask.

1                  10.   The method of claim 7 further comprising booking the  
2                  first MPW shuttle or the second MPW shuttle for the device  
3                  designs.

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

1           11. The method of claim 7 further comprising updating a  
2 first booking record of the first MPW shuttle to include the  
3 second device design, and updating a second booking record of  
4 the second MPW shuttle to include the first device design.

1           12. The method of claim 7 further comprising receiving the  
2 mask data.

1           13. A machine-readable storage medium storing a computer  
2 program which when executed causes a computer to perform a method  
3 of MPW (multi-project wafer) shuttle service, comprising the  
4 steps of:

5           determining whether device design mask data for a first  
6           group reserved on a first MPW shuttle has been  
7           provided by a cut off date for the first MPW shuttle;  
8           and

9           exchanging a first target device design from the first  
10           group with a second target device design from a second  
11           group reserved on a second MPW shuttle if the mask  
12           data of the first target device design has not been

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

13                   provided and that of the second target device design  
14                   has been provided by the cut off date.

1           14. The storage medium of claim 13 further comprising  
2   producing a common mask according to the mask data in the first  
3   group after the cut off date.

1           15. The storage medium of claim 14 further comprising  
2   starting the first MPW shuttle, and fabricating wafers according  
3   to the common mask.

1           16. The storage medium of claim 13 further comprising  
2   booking the first MPW shuttle or the second MPW shuttle for the  
3   device designs.

1           17. The storage medium of claim 13 further comprising  
2   updating a first booking record of the first MPW shuttle to  
3   include the second device design, and updating a second booking  
4   record of the second MPW shuttle to include the first device  
5   design.

1           18. The storage medium of claim 13 further comprising  
2   receiving the mask data.

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

1           19. A system for MPW (multi-project wafer) shuttle  
2 service, comprising:

3           a first MPW shuttle reserving for a first group of device  
4           designs;

5           a second target device design having a pull-in demand; and

6           a checking unit to determine whether mask data from the

7           first group has been provided by a cut off date for

8           the first MPW shuttle, and to exchange a first target

9           device design from the first group with the second

10          target device design if the mask data of the first

11          target device design has not been provided and that

12          of the second target device design has been provided

13          by the cut off date.

1           20. The system of claim 19 further comprising a mask

2           production unit to produce a common mask according to the mask

3           data in the first group after the cut off date.

1           21. The system of claim 20 wherein the checking unit

2           further releases the first MPW shuttle to a production line, and

3           wafer fabrication according to the common mask begins.

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

1           22. The system of claim 19 further comprising a  
2 reservation unit for booking device designs on the first MPW  
3 shuttle.

1           23. The system of claim 22 wherein the checking unit  
2 further updates a first booking record of the first MPW shuttle  
3 to include the second device design, and updates a second booking  
4 record of a second MPW shuttle to include the first device design  
5 via the reservation unit.

1           24. A method for MPW (multi-project wafer) shuttle  
2 service, comprising the steps of:

3           determining whether device design mask data from a first  
4           group reserved on a first MPW shuttle has been  
5           provided by a cut off date for the first MPW shuttle;  
6           and

7           exchanging a first target device design from the first  
8           group with a second target device design having a  
9           pull-in demand if the mask data for the first target  
10          device design has not been provided and that of the

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

11                   second target device design has been provided by the  
12                   cut off date.

1           25. The method of claim 24 further comprising producing  
2           a common mask according to the mask data from the first group  
3           after the cut off date.

i           26. The method of claim 25 further comprising starting the  
2           first MPW shuttle, and fabricating wafers according to the  
3           common mask.

1           27. The method of claim 24 further comprising booking the  
2           first MPW shuttle for the device designs.

1           28. The method of claim 24 further comprising updating a  
2           first booking record of the first MPW shuttle to include the  
3           second device design, and updating a second booking record of  
4           a second MPW shuttle to include the first device design.

1           29. A machine-readable storage medium storing a computer  
2           program which when executed causes a computer to perform a method  
3           of MPW (multi-project wafer) shuttle service, comprising the  
4           steps of:



Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

5           determining whether device design mask data from a first  
6           group reserved on a first MPW shuttle has been  
7           provided by a cut off date for the first MPW shuttle;  
8           and  
9           exchanging a first target device design from the first  
10          group with a second target device design having a  
11          pull-in demand if the mask data of the first target  
12          device design has not been provided and that of the  
13          second target device design has been provided by the  
14          cut off date.

1           30. The storage medium of claim 29 further comprising  
2           producing a common mask according to the mask data in the first  
3           group after the cut off date.

1           31. The storage medium of claim 30 further comprising  
2           starting the first MPW shuttle, and fabricating wafers according  
3           to the common mask.

1           32. The storage medium of claim 29 further comprising  
2           booking the first MPW shuttle for the device designs.

Client's ref.: TSMC2003-0916/PE:SimonLu

Our ref.: 0503-A30084-USf/Yianhou/Steve/Nelson

1           33. The storage medium of claim 29 further comprising  
2     updating a first booking record of the first MPW shuttle to  
3     include the second device design, and updating a second booking  
4     record of a second MPW shuttle to include the first device  
5     design.